MicroVee™

USER'S MANUAL

(120V/230V)



Audio/Video Subwoofer System

Velodyne®

IMPORTANT SAFETY INSTRUCTIONS



Caution

To reduce the risk of electric shock, do not remove cover (or back). No user-serviceable parts inside. Refer servicing to qualified service personnel.

The lightning flash with arrowhead symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the subwoofer.

1. **Read Instructions —** All safety and operating instructions should be read before the product is operated.
2. **Retain Instructions —** The safety and operating instructions should be retained for future reference.
3. **Heed Warnings —** All warnings on the product and in the operating instructions should be adhered to.
4. **Follow Instructions —** All operating and use instructions should be followed.
5. **Water and Moisture —** The product should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, near a swimming pool or the like.
6. **Carts and Stands —** The product should be used only with a cart or stand recommended by the manufacturer.
7. **Wall or Ceiling Mounting —** The product should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. **Ventilation —** The product should be situated so that its location or position does not interfere with its proper ventilation. For example, the product should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or placed in a built-in installation such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. **Heat —** The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products that produce heat.
10. **Power Sources —** The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.
11. **Grounding or Polarization —** This product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
12. **Power-Cord Protection —** Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point at which they exit from the product.
13. **Cleaning —** The product should be cleaned only as recommended by the manufacturer.
14. **Nonuse Periods —** The power cord of the product should be unplugged from the outlet when left unused for a long period of time.
15. **Object and Liquid Entry —** Care should be taken so that objects do not fall and liquids are not spilled onto the enclosure.
16. **Damage Requiring Service —** The product should be serviced by qualified service personnel when:
    a. The power-supply cord or plug has been damaged.
    b. Objects have fallen or liquid has been spilled into the product.
    c. The product has been exposed to rain.
    d. The product does not appear to operate normally or exhibits a marked change in performance.
    e. The product has been dropped or damaged.
17. **Servicing —** The user should not attempt to service the product beyond what is described in the operating instructions. All other servicing should be referred to qualified service personnel.
18. **Lightning —** For added protection for the product during a lightning storm or when it is left unattended and unused for long periods of time, unplug it from the wall outlet.
19. **Overloading —** Do not overload wall outlets, extension cords or integral convenience receptacles as this can result in a risk of fire or electric shock.
20. **Attachments —** Only use attachments and accessories specified by the manufacturer.
21. **Voltage —** Insure that the subwoofer is only connected to the rated source voltage. Do not connect the 120-volt version to 230-volts or vice-versa. This will result in damage to the subwoofer and possible injury to the user.

CAUTION: To prevent electrical shock, match wide blade of plug to wide slot, fully inserted.

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Congratulations

Congratulations on your purchase of a Velodyne MicroVee subwoofer system! This system represents the state-of-the-art in low frequency reproduction and will provide you with years of listening pleasure when properly used and cared for. Read and follow this instruction manual to insure safe and proper system connection and operation.

Warning!

To prevent fire or shock hazard, do not expose this equipment to rain or moisture. To avoid electrical shock, do not open speaker enclosure or amp chassis cover. Please observe all warnings on the equipment itself. There are no user serviceable parts inside. Please refer all service questions to your authorized Velodyne dealer or service representative.

Note: Do not leave unit in direct sunlight or use in high humidity environments!!!

Prior to Installation

Please unpack the system carefully. This unit is heavy. Use caution when lifting or moving to avoid injury. Four rubber feet are included with your subwoofer and are located in the styrofoam packing. Before installing your MicroVee, peel off the adhesive backing and attach the feet to the bottom of the subwoofer.

Please save the carton and all packaging materials for future use. Packing this unit in any other carton may result in severe damage when shipping. Record the serial number in the space provided on the warranty card for future reference.

Product Features and Controls

- Drivers consisting of:
  - Active 6.5" (5" piston diameter) driver with 2" high-temp voice coil and,
  - Dual passive radiators 6.5" (5" piston diameter)
- Built-in 2000 watt Dynamic/1000 watt RMS high efficiency Class D amplifier
- Adjustable (50 to 200 Hz) low-pass crossover (defeatable)
- Line-level (mini-jack) inputs and outputs
- LFE Input
- Speaker-level inputs
- Speaker-level outputs with 120 Hz high-pass crossover
- Signal sensing auto turn on/off (active/inactive)
- Variable volume control
- Selectable phase control (0° or 180°)
- Multiple staggered low-pass crossovers; 12 dB/octave initial, 48 dB/octave ultimate
- Driver Displacement Control circuit to prevent over excursion and amp clipping
- High-excursion rubber surround
- Oversized spider for linearity at high excursion

MINI-JACK Thru
This connection passes along the input signal from the MINI-JACK input unchanged.

Speaker Level Output
These speaker level connections connect to your main speakers. There is 120 Hz high-pass crossover that removes the bass frequencies from your main speakers. This frees them of the burden of playing bass, which makes the entire system perform better.

Volume Control
This control allows you to balance the output from the subwoofer to the main speakers in your system. This control should be set to achieve similar output level from both the main speakers and subwoofer when listening to music. A good starting point for the volume control is three or four dots from minimum.

WARNING: *Some manufacturers preset their receivers with the Sub-Out channel signal at a minimum level. It is very important to verify that your receiver Sub-Out channel is set to the same output level as your front right and left channels. Refer to your receiver manual for the individual channel level adjustment procedure. If your receiver Sub-Out channel is set too low, the subwoofer may appear to have a weak output, it may sound noisy or distorted, and the Auto On/Off feature may not operate properly.*

Low-pass Crossover - 50 to 200 Hz
All inputs sum the left and right channels together, with the resulting signal passing through an adjustable low-pass crossover before being amplified. The crossover control allows you to adjust the upper limit of the subwoofer's frequency response from 50 to 200 Hz. The subwoofer's response will begin rolling off above the frequency you set this control to. You should set the crossover frequency to obtain a smooth and seamless transition from the subwoofer to the main speakers in your system. If your main speakers are smaller with limited low frequency output, you may wish to choose a higher frequency (such as 100-120 Hz) than you would with larger speakers which have greater low frequency output. With larger speakers, you might start with this control set lower, such as 80 Hz.

Phase Adjustment - 0°/180°
This control allows you to "reverse" the phase of the subwoofer's output signal 180° to correct for any possible mismatch and resulting cancellation between the subwoofer and your main speakers. To adjust, simply listen to the system with music playing. Then move the switch from one position to the other and listen for a change in low frequency output. The correct position will have a greater amount of apparent low frequency output.

Crossover Switch - INTERNAL X-OVER/SUBWOOFER DIRECT
This switch allows the MicroVee's internal crossover circuitry to be bypassed. This is required in certain installations which route the signal through external processors with a crossover circuit of their own. Simply move the switch to **SUBWOOFER DIRECT** to disengage the built-in crossover. For all other installations which do not have a separate electronic crossover, we recommend you leave the switch set to **INTERNAL X-OVER** to provide optimum performance.

NOTE: This is explained further in the section below entitled "A Word About Crossovers".

Auto Turn On Function

With this function in the "active" position, your subwoofer can be safely left with the main power switched on continuously. The subwoofer will turn itself on automatically when an audio signal is present. If no signal is present for approximately 15 minutes, the unit will switch to standby mode. While in standby mode, your subwoofer will draw very minimal power. This function can be disabled by leaving the switch in the "inactive" position.

WARNING: *If the Sub-Out channel signal level from your receiver is too weak, this feature will not operate properly. See VOLUME CONTROL section on previous page.*

Power Switch

The master power switch is located on the lower half of the unit. This rocker style switch is the main on/off control for the unit. This switch should be set to position 1 (up) for on, and 0 (down) for off. If the unit is to be left unused for an extended period of time, the master power switch should be turned off.

A Word About Crossovers

The MicroVee is designed to operate using the full range audio signal as input. Some processors/receivers have a "subwoofer out" (or LFE) jack, which is the ouput of the receiver's crosssover, that is, signal that has already had the upper frequencies removed. Consult your receiver's owner's manual on adjusting this setting. In some rare cases, combining both the receiver's crossover and the one internal to the subwoofer may result in low output and increased noise. In these installations you may need to bypass the crossover in either the processor or the MicroVee. In some installations, simply setting one crossover to a higher frequency (such as 120 Hz) will restore maximum performance. To bypass the subwoofer's internal crossover when the unit is being fed a low pass signal from another crossover, simply locate the switch marked **INTERNAL X-OVER/SUBWOOFER DIRECT** on the rear panel of the subwoofer and set to the **SUBWOOFER DIRECT** position. This will eliminate the MicroVee's crossover from the signal path.

LFE Connection - Option A

Figure 2 shows connection from your home theater receiver to the LFE input on the back of your subwoofer. When the subwoofer is installed in this fashion, all of the low frequency information from your "LFE Out" or "Subwoofer Out" on the back of your receiver will pass into your Velodyne subwoofer. This connection is the most common connection method when using your subwoofer with a 5.1 receiver. (Cable needed: 1 mono RCA cable.)

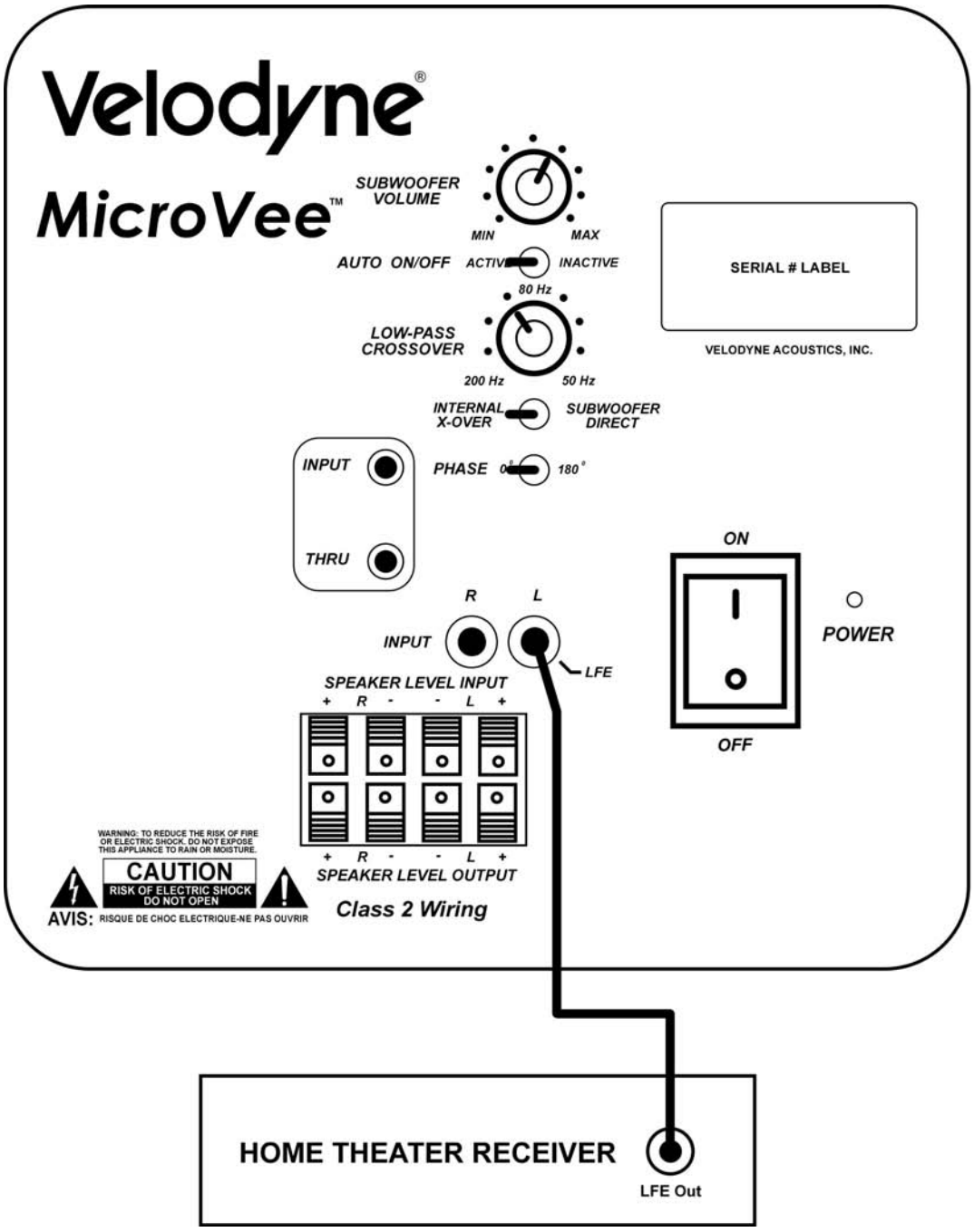


Figure 2. Installation Using LFE Line-Level Inputs

A Word About The Auto On/Off Feature

When using a single channel input (such as a surround sound processor's subwoofer out or LFE), the auto on/off circuit sensitivity will be affected. When one input channel is used instead of two, the unit will see lower signal levels present at the inputs. This may cause the unit to turn off inadvertantly when listening at low volume levels and/or not "wake up" even when signal is present. If this occurs, simply use a "Y" adapter (available from most dealers) to allow your processor's single sub line to be fed into both L&R inputs. This will make the unit turn on at lower signal levels.

Mini-Jack Connection - Option B

Figure 3 shows connection from your audio player or gaming console output to the MINI-JACK of your Velodyne subwoofer. Use the supplied cable to connect from the output of your dock, computer or gaming console to the input jack of the MicroVee. Connect the satellite speakers into the thru-jack on the back of the MicroVee subwoofer. (Cable supplied by Velodyne: 6 foot, 1/8" (male) to 1/8" (male) stereo cable.)

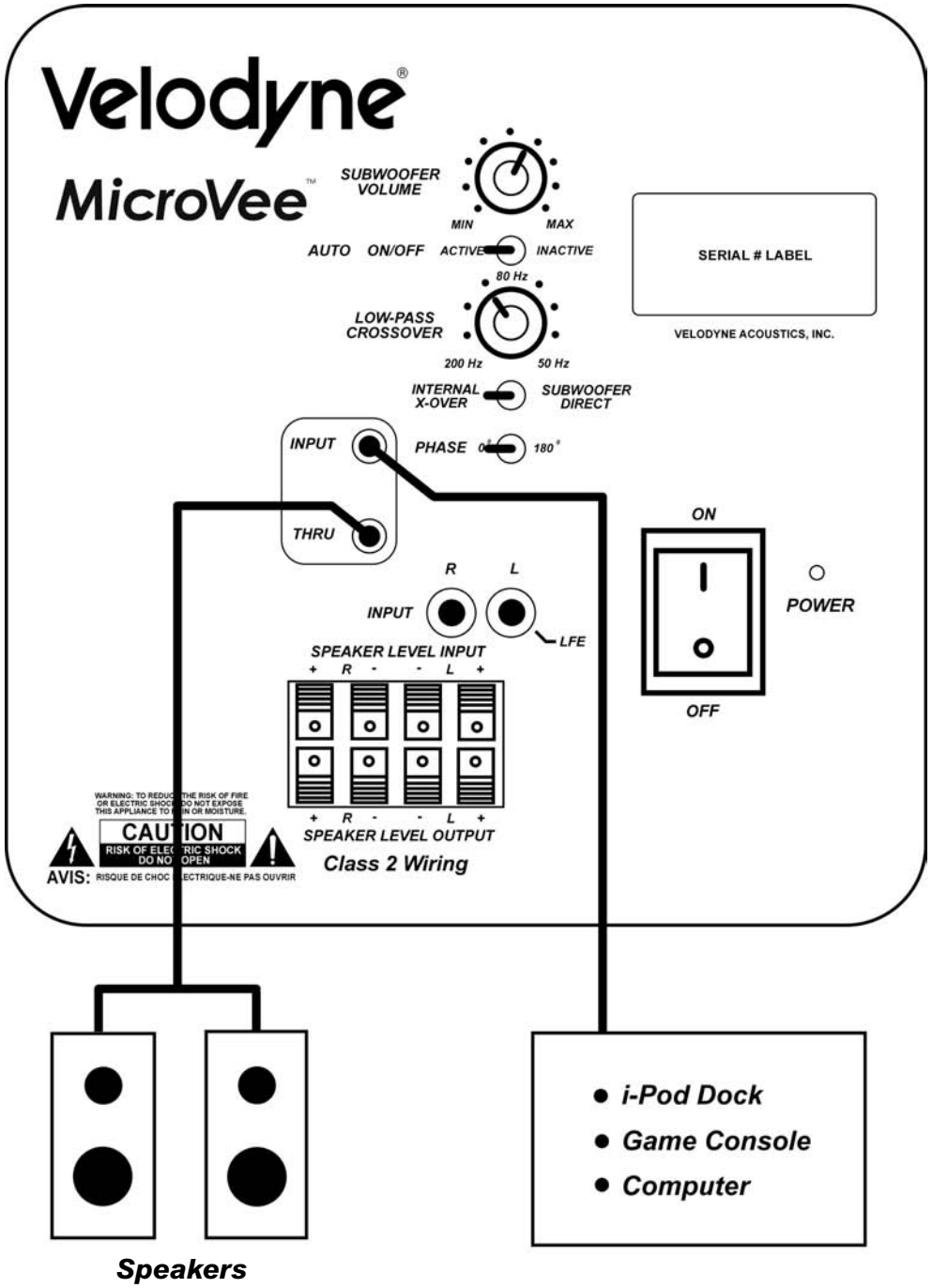


Figure 3. Installation Using Mini-Jack Line-Level Inputs

Speaker-Level Connection - OPTION C

Figure 4 shows an easy way to connect your Velodyne subwoofer directly to your receiver or integrated amplifier if it lacks line-level outputs. You may also connect your satellites directly to your receiver or amplifier along with the subwoofer. Your receiver or amplifier will not notice the additional load of the subwoofer due to the high input impedance.

When the subwoofer is installed in this fashion, your satellite speakers will be crossed over at 120 Hz which removes the lower bass frequencies from your speakers, enabling them to do a better job reproducing the higher frequencies.

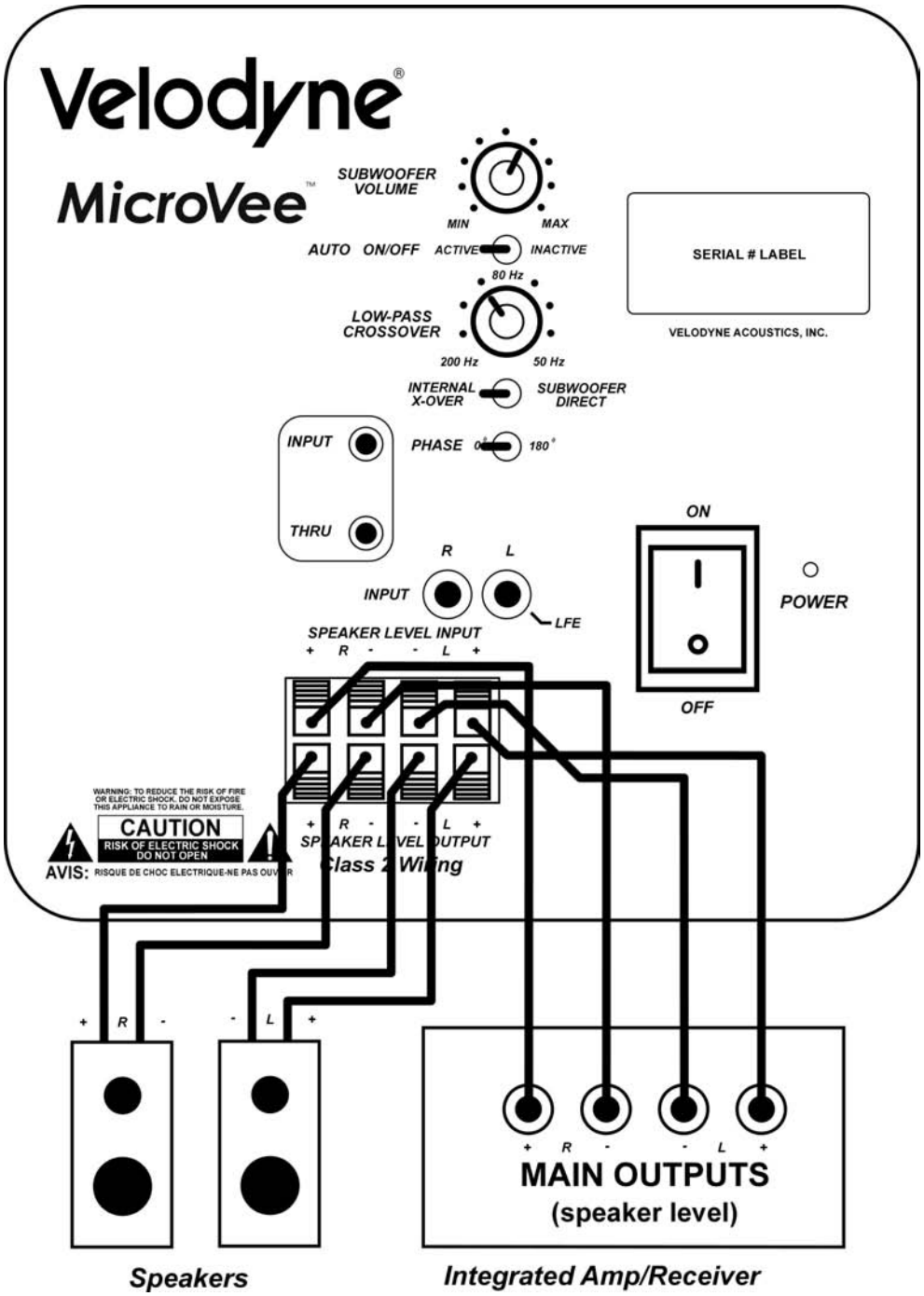


Figure 4. Installation Using Speaker-Level Inputs

Caution!!! To avoid damage to your main amplifier, be sure to maintain correct polarity when making all connections. Red (positive) to red, and black (negative) to black. Be sure that all connections are tight, and that there are no loose strands or frayed wires.

Interconnect Cables

When installing your new Velodyne subwoofer using the line level connections, you should always use shielded phono cables. There are many quality cables available. We recommend that you keep the length of cable as short as possible to avoid any potential noise problems.

When using speaker level connections, use a quality speaker wire that mates well with the connectors. Be very careful to avoid any loose strands or frayed wires which may result in a short which may in turn, damage your equipment. Extremely large gauge wire may not properly fit in the binding posts, resulting in a poor connection and possible short circuits.

Care of Your Subwoofer

Your Velodyne subwoofer does not require any regular maintenance. Normal dusting or cleaning of the surface for appearance purposes are all that is required. We suggest you avoid any harsh detergents or chemicals when cleaning the cabinet. Abrasives, detergents, or cleaning solutions may damage the finish on the cabinet. We recommend using only a damp cloth to clean the cabinet.

During normal conditions, your new subwoofer may be left on continuously without any problems. The unit is equipped with a signal-sensing turn on/off that will automatically turn on the unit when a signal is present at the inputs and turn off the unit after several minutes when there is no longer any signal at the inputs. If you plan to leave the subwoofer unused for an extended period of time, we recommend that you turn off the master power switch on the rear panel.

Protection Circuitry

Your new subwoofer is equipped with special protection circuitry to provide maximum performance with greatest reliability.

The unit is protected against:

1) Overdriving the speaker or amplifier
2) Overheating the amplifier
3) Excessive drop in power line voltage

The first type of protection circuitry which prevents overdriving of the speaker or amplifier operates constantly without being audible under most situations. In some extreme situations (sustained high output levels such as pro sound usage), the unit may shut down momentarily. This indicates the thermal or under-voltage protection circuitry has engaged. If this should happen, you should reduce the volume setting or shut the unit off until normal operating conditions return. You may also want to plug the unit into a different wall outlet, as dropping power line voltage will be most noticeable under strenuous conditions and may result in the unit shutting down intermittently.

Troubleshooting and Service

Before seeking service for your amplifier or subwoofer, please re-check all systems. Following is a simple troubleshooting guide to assist you.

1. Verify that the unit is plugged in and power outlet used is active.
2. Is the power switch on?
3. Is the unit receiving an input signal from your source?
4. Have all controls (volume, crossover, phase, etc.) been properly set?
5. If the unit has been running at high levels, one of the protection circuits may be engaged. Has the amplifier overheated?
6. Has the power button been depressed on the remote?
7. Make sure binding posts are tightened.

If the protection circuitry is active, the unit may cycle on and off until operating parameters return to normal. Under more serious conditions, the unit may shut off completely. Normal operation should return upon cooling, but you may be required to turn the power off and then on again to reset the unit.

The following conditions require service by a qualified technician:

1. The power cord has become damaged
2. The unit does not appear to operate normally or exhibits a marked change in performance
3. The unit has been exposed to water
4. Some part of the chassis or circuitry is physically damaged

Thank You for Purchasing a Velodyne!

SPECIFICATIONS

Specifications	MicroVee
Driver	6.5" forward firing (5" piston diameter)
Passive Radiators	Dual 6.5" side-firing (5" piston diameter)
Amplifier (Class D)	2000 watts Dynamic 1000 watts RMS power
Low-Pass Crossover	50 Hz - 200 Hz (adjustable) 12 dB octave initial, 48 dB octave ultimate
Auto On/Off	Yes
Cone	Anodized aluminum
Frequency Response	38 - 120 Hz (+/-3 dB)
Harmonic Distortion	<5% (typical)
Magnet Structure	64 oz. (4 lbs)
Voice Coil	2" Dual Layer
Inputs	Speaker-level, mini-jack and gold plated line-level
Outputs	Speaker-level (120 Hz high-pass crossover), mini-jack (thru)
Phase	0° or 180° (selectable)
Video Shielded	No
Dimensions (H/W/D) (includes grille)	9" x 9" x 9.6" (22.9 x 22.9 x 24.4 cm)
Cabinet	Sealed enclosure
Warranty (parts/labor)	Three years (electronics - parts and labor), Five years (drivers - parts and labor)
Shipping Weight (approx.)	20 lbs. (9.1 Kgs)

Specifications subject to change.

FOR YOUR RECORDS. . .

Date Puchased_____

Dealer_____

Serial #_____

**NOTE: Please complete and return your warranty card within ten (10) days or*

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LIMITED WARRANTY - U.S. AND CANADA ONLY

VELODYNE ACOUSTICS, Inc. ("VELODYNE") warrants all electronics for a period of three years, drivers for a period of five years, and full range speakers for a period of five years. All VELODYNE products have a warranty from the date of purchase against defects in materials and workmanship subject to the following conditions:

1. VELODYNE is not responsible for defects which result from the use of an amplifier or controller other than the one originally supplied with the unit (subwoofer) or defects which result from modifications or repairs made by any component of the system by anyone other than a VELODYNE factory authorized service representative.
2. This warranty is void if any repairs or service covered by the terms of this warranty are made to any component of the system by anyone other than a VELODYNE factory authorized service representative.
3. VELODYNE is not responsible for damage caused by accidents, abuse, misuse, natural or personal disaster or unauthorized modification. The VELODYNE products are not intended for professional or commercial use and VELODYNE is not responsible for damage resulting from such use.
4. The VELODYNE product warranty is limited to units that are purchased from authorized VELODYNE dealers and finalized within authorized dealer locations.
5. This warranty is nontransferable under any condition.

TO OBTAIN SERVICE

Information regarding service may be obtained from the dealer from whom you purchased the unit, or by contacting VELODYNE customer service. Warranty service must be performed by a VELODYNE factory authorized service representative within the warranty period set forth above. If VELODYNE determines the unit is defective, VELODYNE will, at VELODYNE's option, repair or replace the product at no charge if the product is forwarded prepaid to a factory authorized service representative. Products forwarded to the factory authorized service representative should be shipped securely and properly packaged, insured and freight prepaid.

WARRANTY OUTSIDE THE UNITED STATES AND CANADA

The Warranty of this product if it is sold to a consumer outside of the United States or Canada shall comply with applicable law and shall be the sole responsibility of the distributor that supplied this product. To obtain any applicable warranty service, please contact the dealer from which you purchased this product, or the distributor that supplied this product.

115-120V

DD® Series
DD-10
DD-12
DD-15
DD-18
Digital Drive 1812 Signature Edition

DEQ-R Series
DEQ-8R
DEQ-10R
DEQ-12R
DEQ-15R

DLS™-R Series
DLS-3500R
DLS-3750R
DLS-4000R
DLS-5000R

Impact Series
Impact-Mini
Impact-10
Impact-12

MicroVee™

MiniVee®

MiniVee® 10

Optimum Series
Optimum-8
Optimum-10
Optimum-12

SMS™-1

SubContractor™ Series
SC-1250
SC-10
SC-12
SC-15
SC-IW
SC-IF/IC
SC-600 Amp
SC-600 IW
SC-600 IF/IC

VX Series
VX-10®

220-240V

DD® Series
DD-10
DD-12
DD-15
DD-18
Digital Drive 1812 Signature Edition

CHT-Q Series
CHT-8Q
CHT-10Q
CHT-12Q
CHT-15Q

Impact Series
Impact-Mini
Impact-10
Impact-12

MicroVee™

SMS™-1

SPLi Series
SPL-800i
SPL-1000i

SPL-Ultra Series
SPL-800 Ultra
SPL-1000 Ultra
SPL-1200 Ultra

SubContractor™ Series
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SC-10
SC-12
SC-15
SC-IW
SC-IF/IC
SC-600 Amp
SC-600 IW
SC-600 IF/IC

VX-10 Series II

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